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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/396,352
Filing Date: September 14, 1999
Appellant(s): TUMER, TUMAY O.

Robert D. Fish
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5/30/06 appealing from the Office action mailed 3/28/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 75-76, 78-81, 83-84, 90-96 and 100 are rejected under 35 U.S.C. 103(a) as being obvious over Kip et al. (US Pat. No. 5,105,190) in view of Carroll (US Pat. No. 4,857,893).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. **Claims 75-76, 78-81, 83-84, 90-96 and 100** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al. (US pat. #5,105,190) in view of Carroll (US pat. #4,857,893).

1) In considering amended claims 75:

Kip et al. discloses a tag comprising a circuit that includes: an antenna (5) that receives an electromagnetic wave (Fig. 2); a signal receiving system that receives and stores input data derived from the wave (23, 24 of Fig. 2; Fig. 3), a separate power storage component that receives and stores sufficient energy to power the circuit including the transmitting antenna (6, 26, 8 of Fig. 2); a data processing system (7 of Fig. 2) that produces output data form the input data; and the backscatter antenna (5) and electronics (7) that transmit at least a portion of the input data externally to the tag (backscattering communication in Figs. 2-3); except: specifying the claimed wherein the circuit is in the form of an integrated circuit.

In the same art of tag construction, Carroll teaches all circuit components of a tag are implemented in the form of an integrated circuit located on a die (Figs. 9A-9B and col. 11, line 11 to col. 12, line 51).

In view of the teachings by Kip et al. and Carroll, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to implement the tag circuit of Kip in an integrated circuit form as taught by Carroll for mass production benefits such as cost, and compact housing for ease of physical application in intended uses.

2) Regarding claim 76, Kip et al. and Carroll render obvious all of the claimed subject matter as in claim 75, including:

--the claimed wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light (col. 4, lines 50-55 and col. 2, lines 43-52 of Carroll.)

While Kip et al. did not specify the frequency range of the electromagnetic waves in spectrum, Carroll specified the RF waves, and indicated that use of RF waves as opposed to magnetic fields enables longer reading range (col. 2, lines 43-52). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to implement the tag system of Kip et al. and Carroll using RF waves for increased reading range for broader utility.

3) Regarding claim 78, Kip et al. and Carroll render obvious all of the claimed subject matter as in claim 75, including:

--the claimed loop antenna (coiled antenna 5 of Kip et al. which inherently is a loop or loop antenna).

4) In considering claims 79 and 81, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

--the claimed nonvolatile memory section that stores at least a portion of the input data (24 of Fig. 5 and col. 2, lines 52-55 and col. 3, lines 4-5 of Kip et al.).

5) In considering claim 80, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

--the claimed tuning circuit ("C" and "10" in Fig. 4 and "10" in Fig. 2 of Kip et al.) that tunes the first antenna to receive the wave at a frequency of between RF waves and ultraviolet ("C3", "C4" in Fig. 6 and col. 5, lines 34-38 of Carroll.).

6) In considering claims 83 and 95, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

a) the claimed shift register circuit (76, 82 in Fig. 4 of Carroll);

except:

b) the claimed multiplexer that controls flow of the input data.

Kip et al. teaches receiving input data for writing into the tag memory (24) whereby the input data is received in electromagnetic wave in a serial manner (Fig. 3, waveform "b"). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use either an appropriate shift register circuit shown as known in the art by Carroll, or a multiplexer to control flow of the input data into the memory for storage in a tag such as taught by Kip et al. and Carroll if the memory-write operation involves converting the serial input data stream into parallel data bits, such as in parallel-input type memories.

7) In considering claims 84 and 94, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

a) the claimed clock generator circuit (28 in Fig. 2 of Carroll)

except:

b) the claimed pulse generating circuit.

Carroll shows the known use of a clock generator circuit for providing timing signals for controlling tag operations (28 in Fig. 2 and col. 4, lines 55-57). Kip et al. shows that the IC 7 in Fig. 3 activates switch 9 according to the output data in digital form. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a clock generator circuit such as taught by Carroll, or a similar pulse generating circuit (since used for digital

switching here) in IC 7 in a tag such as taught by Kip et al. and Carroll to provide the timing signals for operation of the switch to generate the digital output data.

8) In considering claims 91 and 93, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

--the claimed input and output data are in digital form (Figs. 2-3 of Kip et al.)

9) In considering claims 90 and 92, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

--the claimed input and output data are in analog form (Fig. 5A of Carroll).

While Kip et al. discloses a tag communication system using digital data format, Carroll shows the known alternative of using analog. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use either analog or digital form for the input and output data in a tag such as taught by Kip et al. and Carroll based on the preferred modulation method of choice without unexpected results.

10) In considering claim 96, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

--the claimed data processing system that processes the input data and produces at least one decision and takes at least one action (circuit component 7 in Fig. 2 of Kip et al. that bases on the input data in the input wave and decides on the operations and actions of reading, writing, and transmitting and carrying out those operations and actions).

11) In considering claim 100, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 75, including:

--the claimed circuits selected from a group of circuits including logic (AND & OR/NOR logic gates used in Fig. 4 of Carroll), sequencing (register 76 in Fig. 4 of Carroll) and switching (9 in Fig. 2 of Kip et al.; gated switching in Fig. 4 of Carroll).

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use such known logic and sequencing circuits in a tag such as taught by Kip et al. and Carroll to logically determine (using logic) the current mode of operation (reading and writing in Fig. 3 of Kip et al.) and to time (using sequencing) the operational stages of receiving, reading, writing, switching and transmitting.

2. **Claims 27-28, 33-44, 48-52, 54-64, 68-74, 77, 85-88, 102-103 and 107-109**are rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al. (US pat. #5,105,190) in view of Moskowitz et al. (US pat. #5,528,222) and Carroll (US pat. #4,857,893).

1) In considering amended claims 27, 50-52 and 64:

Kip et al. discloses a tag comprising a circuit having: an antenna (5) that receives an electromagnetic wave (Fig. 2); a signal receiving system that receives and stores input data derived from the wave (23, 24 of Fig. 2; Fig. 3), a separate power storage component that receives and stores sufficient energy to power the circuit including the transmitting antenna (6, 26, 8 of Fig. 2); a data processing system (7 of Fig. 2) that produces output data form the input data; and the backscatter antenna (5) and electronics (7) transmit at least a portion of the output data externally to the tag (Figs. 2-3); except: a) the claimed separate use of first and second antennas for respective receiving and transmitting; b) the circuit is in the form of an integrated circuit.

In the same art of tag construction, Moskowitz et al. teaches the known alternative use of first and second separate (dipole) antennas for receiving and transmitting, respectively (Fig. 5); while Carroll teaches all circuit components of a tag are implemented in the form of an integrated circuit located on a die (Figs. 9A-9B and col. 11, line 11 to col. 12, line 51).

While Kip et al. shows using a single antenna for transmitting and receiving requiring sharing of the antenna, Moskowitz et al. demonstrated the single antenna's well known alternative of using separate transmitting and receiving antennas (Figs. 4-6). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use separate receiving and transmitting antennas in a system such as taught by Kip et al. and Moskowitz to alleviate the need to share a single antenna for both receiving and antenna thus alleviating antenna-sharing timing management constraints, and furthermore to use first and second dipole antennas as taught by Moskowitz et al. as alternatives to the coil antenna of Kip et al. for relatively longer reading range.

In view of the teachings by Kip et al., Moskowitz et al. and Carroll, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to implement the tag circuit of Kip and Moskowitz in an integrated circuit form as taught by Carroll for mass production benefits such as cost, and compact housing for ease of physical application in intended uses.

2) In considering amended claim 28, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in the consideration of amended claim 27.

3) In considering amended claim 33, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

--the claimed wave has a wavelength within a spectrum of the wavelengths from radio waves to ultraviolet light inclusive (RF of Abstract of Moskowitz et al.; col. 4, lines 50-55 and col. 2, lines 43-52 of Carroll.)

While Kip et al. did not specify the frequency range of the electromagnetic waves in the spectrum, Moskowitz et al. and Carroll specified the RF waves, and Carroll indicated that use of RF waves as opposed to magnetic fields enables longer reading range (col. 2, lines 43-52). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to implement the tag system of Kip et al., Moskowitz et al. and Carroll using RF waves for increased reading range for broader utility.

4) In considering amended claims 34-35, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

--the claimed nonvolatile memory section (24 of Fig. 5 and col. 2, lines 52-55 and col. 3, lines 4-5 of Kip et al.) that stores at least a portion of the input data and at least a portion of the output data (both).

5) In considering amended claims 36 and 43, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

a) claimed shift register circuit (76, 82 in Fig. 4 of Carroll);

except:

b) the claimed multiplexer that controls flow of the input data.

Kip et al. teaches receiving input data for writing into the tag memory (24) whereby the input data is received in electromagnetic wave in a serial manner (Fig. 3, waveform "b"). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to

use either an appropriate shift register circuit shown as known in the art by Carroll, or a multiplexer to control flow of the input data into the memory for storage in a tag such as taught by Kip et al., Moskowitz et al. and Carroll if the memory-write operation involves converting the serial input data stream into parallel data bits, such as in parallel-input type memories.

6) In considering amended claims 37 and 42, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

a) the claimed clock generator circuit (28 in Fig. 2 of Carroll)

except:

b) the claimed pulse generating circuit.

Carroll shows the known use of a clock generator circuit for providing timing signals for controlling tag operations (28 in Fig. 2 and col. 4, lines 55-57). Kip et al. shows that the IC 7 in Fig. 3 activates switch 9 according to the output data in digital form. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a clock generator circuit such as taught by Carroll, or a similar pulse generating circuit (since used for digital switching here) in IC 7 in a tag such as taught by Kip et al., Moskowitz et al. and Carroll to provide the timing signals for operation of the switch to generate the digital output data.

7) In considering amended claims 38 and 40, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, plus the consideration of claims 90 and 92, respectively.

8) In considering amended claims 39 and 41, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, plus the consideration of claims 91 and 93, respectively.

9) In considering amended claim 44, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

--the claimed second antenna is a backscatter type antenna (antenna 5 in Fig. 2 and col. 2, lines 32-46 of Kip et al. describing the antenna having backscattering characteristics when in transmitting mode, in combination with Moskowitz et al.'s teaching of using second antenna for transmitting separate from first antenna for receiving.)

10) In considering amended claim 48, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, plus the consideration of claim 68.

11) In considering amended claim 49, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claim 33.

12) In considering amended claims 54-55, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claims 34-35, respectively.

13) In considering amended claim 56, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, except:

-- the claimed multiplexer that controls flow of the output data.

Kip et al. teaches reading output data from the tag memory (24) for serial output using switch 9 (Fig. 2) whereby the data is digital (Fig. 3, waveform "b"). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a multiplexer to control flow of the output data during reading from the memory (conversion from parallel to serial data) for outputting/transmitting in a tag such as taught by Kip et al., Moskowitz et al. and

Carroll if the memory-read operation involves converting the memory stored data into serial data stream, such as when the memory is of the parallel-out type memory.

14) In considering amended claim 57, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claim 37.

15) In considering amended claims 58 and 60, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claims 38 and 40, respectively.

16) In considering amended claims 59 and 61, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claims 39 and 41, respectively.

17) In considering amended claims 62-63, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claims 42-43, respectively.

18) In considering amended claim 68, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claim 48.

19) In considering amended claims 69-70, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claim 33 (RF).

20) In considering amended claim 71, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, plus the consideration of claims 34 and 52.

21) In considering amended claim 72, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claim 71, including:

--the claimed monolithic integrated circuit (line 17 of Abstract of Carroll).

22) In considering amended claim 73, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, plus the consideration of claim 96.

23) In considering amended claim 74, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 28, plus the consideration of claim 73.

24) In considering amended claim 77, Kip et al. and Carroll render all of the claimed subject matter obvious as in claim 75, plus the consideration of claim 27 further in view of Moskowitz et al. regarding the use of dipole antenna.

25) In considering claim 87, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, including:

--the claimed first and second antennas are a single antenna (Figs. 2 & 4 of Kip et al.)

26) Regarding claims 102-103, Kip et al., Moskowitz et al. and Carroll render obvious all of the claimed subject matter as in claim 27, including:

--the claimed loop antenna (coiled antenna 5 of Kip et al. which inherently is a loop or loop antenna).

27) Regarding claim 107, Kip et al., Moskowitz et al. and Carroll render obvious all of the claimed subject matter as in claim 28, including:

--the claimed loop antenna (coiled antenna 5 of Kip et al. which inherently is a loop or loop antenna).

28) Regarding claims 108-109, Kip et al., Moskowitz et al. and Carroll render obvious all of the claimed subject matter as in claim 28, plus the consideration of claim 64.

3. **Claim 101** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al. in view of Carroll and Tuttle et al. (US pat. #5,779,839).

1) Regarding claim 101, Kip et al. and Carroll render obvious all of the claimed subject matter as in claim 75, except:

--the claimed wherein the antenna comprises a single pole antenna.

However, it has been known that a variety of antenna types can be implemented on an RFID transponder tag including a single pole (monopole) antenna, such as taught by Tuttle et al. (Abstract; col. 2, lines 59-65). In view of the teachings by Kip et al., Carroll and Tuttle et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to implement the antenna(s) in Kip et al. and Carroll using a known single pole antenna as taught by Tuttle et al. based on the intended design criteria of power, range and frequency considerations.

4. **Claims 104-106** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al. in view of Moskowtiz, Carroll and Tuttle et al. (US pat. #5,779,839).

1) Regarding claims 104-106, Kip et al., Moskowitz and Carroll render obvious all of the claimed subject matter as in claims 27 or 28, plus the consideration of claim 101 further in view of Tuttle et al.

5. **Claim 97** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al. in view of Carroll and Roth et al. (US pat. #5,272,117).

1) In considering claim 97, Kip et al. and Carroll made obvious all of the claimed subject matter as in claim 75, except:

--the claimed wherein the integrated circuit (IC) is built onto a substrate that includes a material selected from the group consisting of silicone, germanium, GaAs, sapphire, or diamond. Carroll teaches using a chip substrate wherein the integrated circuit and various other tag components are built onto (Figs. 9A-9B), while various materials including silicone, germanium, GaAs, and sapphire or diamond have been known for use in constructing IC or semiconductor substrates or supports, such as taught by Roth et al. (col. 2, line 67 to col. 3, line 14). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that such conventionally used materials can be used as the chip die material/substrate the device such as taught by Kip et al. and Carroll is built onto in view of Roth et al.

6. **Claims 45 and 65** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al. in view of Moskowitz et al., Carroll and Roth et al. (US pat. #5,272,117).

1) In considering claim 65, Kip et al., Moskowitz et al. and Carroll made obvious all of the claimed subject matter as in claim 28, plus the consideration of claim 97 further in view of Roth et al.

2) In considering claim 45, Kip et al., Moskowitz et al. and Carroll made obvious all of the claimed subject matter as in claim 27, plus the consideration of claim 65 above further in view of Roth et al. wherein the IC including its substrate is made of the composition of material listed.

7. **Claims 46-47 and 66-67** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al., Moskowitz et al. and Carroll, and further in view of Schoenian et al. (US pat. #5,748,106).

1) In considering claims 46-47, Kip et al., Moskowitz et al. and Carroll made obvious all of the claimed subject matter as in claim 27, except:

--the claimed wherein the integrated circuit contains test and monitoring control circuitry or points and pads.

However, the concept of testing and monitoring electronic circuits and components on devices either via onboard circuitry or via external devices using testing and monitoring points/pads, in order to ensure the circuits/components are working properly has been well known in the electronic device art. Schoenian et al. further demonstrated that it has been known to test/monitor the circuits on an electronic tag (col. 2, lines 1-13 and Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include test and monitoring control circuitry or points and pads in an electronic tag device such as taught by Kip et al., Moskowitz et al. and Carroll in order to ensure proper operations such as taught by Schoenian et al. by allowing testing using either on-board or external testing/monitoring circuitry.

2) In considering claims 66-67, Carroll and Moskowitz et al. made obvious all of the claimed subject matter as in claim 28, plus the consideration of claims 46-47 above further in view of Schoenian et al.

8. **Claims 98-99** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al., and Carroll, and further in view of Schoenian et al. (US pat. #5,748,106).

1) In considering claims 98-99, Kip et al. and Carroll made obvious all of the claimed subject matter as in claim 75, except:

--the claimed wherein the integrated circuit contains test and monitoring control circuitry or points and pads.

However, the concept of testing and monitoring electronic circuits and components on devices either via onboard circuitry or via external devices using testing and monitoring points/pads, in order to ensure the circuits/components are working properly has been well known in the electronic device art. Schoenian et al. further demonstrated that it has been known to test/monitor the circuits on an electronic tag (col. 2, lines 1-13 and Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include test and monitoring control circuitry or points and pads in an electronic tag device such as taught by Kip et al. and Carroll in order to ensure proper operations such as taught by Schoenian et al. by allowing testing using either on-board or external testing/monitoring circuitry.

9. **Claim 82** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al., Moskowitz et al. and Carroll further in view of Carney et al. (US pat. #5,446,447).

1) In considering amended claim 82, Kip et al., Moskowitz et al. and Carroll render all of the claimed subject matter obvious as in claim 27, except:

--the claimed driver circuit drives the second antenna selected from a group including full wave, half-wave and quarter-wave reflectors.

The RF tag of Kip et al., Moskowitz et al. and Carroll drives the second antenna as a reflector (backscatter) for communicating output data out of the tag using known antennas including coil/loop antennas and dipole antennas.

In the same art, Carney et al. teaches the known alternative use of a half-wave or quarter-wave patch antenna as the backscattering/reflector antenna in an RF passive tag for operation in

the 2.5 GHz or 5.7 GHz ranges (col. 7, lines 27-57; col. 5, lines 56-67). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a known patch antenna such as taught by Carney et al. as the second antenna in a tag such as taught by Kip et al., Moskowitz et al. and Carroll if 2.5 GHz or 5.7 GHz operating frequency ranges are desired or preferred in particular applications or application environments.

10. **Claim 89** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kip et al., Moskowitz et al. and Carroll further in view of Lake (US pat. #6,031,459).

1) In considering claim 89, Kip et al., Moskowitz et al. and Carroll made obvious all of the claimed subject matter as in the consideration of claim 27, except:

--specifying the claimed received wave in the first antenna and the output wave from the second antenna are in a wavelength region of microwave to ultraviolet, inclusive.

While Carroll did not specify whether the radio frequency signals are of the low frequency type or higher microwaves, it has been known to use microwaves as a specific type of radio frequency signals for a passive backscattering tag having either one or two antennas such as taught by Lake (Fig. 1; col. 3, lines 61-62; col. 4, lines 51-58). In view of the teachings by Kip et al., Moskowitz et al., Carroll and Lake it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use microwaves as the radio frequency signals of choice for communication by the tag in a system such as taught by Kip et al., Moskowitz et al. and Carroll in light of the teaching of Lake without unexpected results.

(10) Response to Argument

Applicant's arguments with respect to claims **27-28, 33-52 and 54-84, 87 and 90-109** have been considered but are not deemed persuasive.

1) Appellant's recitation of the criteria for establishing proper *prima facie* showing of obviousness, which includes, in part, that motivation for combining references can be satisfied by "showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references", is duly noted. Such criteria have been applied in the Office action rejection as further explained below.

2) Appellant argues that prima facie showing of obviousness has not been satisfied because of the following:

a) Carroll (US pat. #4,857,893) reference's on-chip antenna is "completely silent as to whether the antenna could provide sufficient power to operate the chip and instead teaches that its chip is powered by an external battery."

--Examiner's Answer: The Office action rejection, as well as the Response to Argument section of the Final Office action, clearly indicated that Carroll teaches such claimed limitation by pointing to the Abstract; col. 3, lines 21-31 and 37-41 of Carroll, which stated that power for the chip device is derived from the received electromagnetic wave, and only as an ALTERNATIVE, a battery may be used (see Abstract which clearly stated such, and Fig. 7 as the ONLY figure embodiment showing the transponder device using a battery B1, as opposed to other figure embodiments of the transponder device that does not use any battery.) Since the embodiment which the Office action rejection relied upon (that doesn't use a battery) derives power from the received electromagnetic wave to operate the whole device (and the device does

operate), such derived power is sufficient to power the device including the chip since there is no other power source available and the chip uses no other power source.

b) The rejection is inappropriate because one of ordinary skill in the art would have expected that the combination to fail: (1) an antenna disposed on an IC would produce insufficient power to operate the IC; and (2) an on-chip component would be unable to store enough energy to power the chip. The proof is that every embodiment in the prior art used either a second off-chip antenna or an external power source.

--Examiner's Answer: As indicated above, Carroll shows an on-chip antenna that provides sufficient power to power the chip device (IC). Since the validity of a patent including the Carroll patent is not in question here, one of ordinary skill in the art at the time of the claimed invention would not have reason to expect the combination used in the Office action to fail. Secondly, if it is assumed that the claimed invention works, and the prior art combination meets every limitation of the claimed invention, it logically follows that the prior art combination would also work as well.

c) Appellant's remaining arguments regarding the individual rejections are directed to the same arguments of alleged deficiencies already addressed above. As a further clarification, since Carroll teaches implementing the whole transponder device in an on-chip/IC (integrated circuit) form, the "power storage component" of the transponder device which is part of the transponder device would have been "within the IC" as argued and claimed in the combined teachings as addressed in the Office action rejection.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Examiner Benjamin C. Lee

Conferees:

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